

S.N. 09/681,374

RD-27,727

The listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF THE CLAIMS

Claim 1 (currently amended): A composition for electron emitters of gas discharge devices comprising a mixture of carbon nanotubes and oxygen-containing compounds of only alkaline-earth metals, wherein said carbon nanotubes have a diameter in a range from about 1 nm to about 200 nm, and said composition is coated on said electron emitters.

Claim 2 (currently amended): ~~The A composition according to claim 1~~ for electron emitters of gas discharge devices comprising a mixture of carbon nanotubes and oxygen-containing compounds of alkaline-earth metals, wherein said oxygen-containing alkaline-earth metals are alkaline-earth metal oxides.

Claim 3 (canceled)

Claim 4 (currently amended): The composition according to claim 3 2 wherein said diameter is in a range from about 1 nm to about 100 nm.

Claim 5 (previously presented): The composition according to claim 2 wherein a proportion of said carbon nanotubes in said mixture of carbon nanotubes and alkaline-earth metal oxides is in a range from about 0.1 percent by volume to about 95 percent by volume.

Claim 6 (previously presented): The composition according to claim 5 wherein said proportion is from about 5 percent by volume to about 90 percent by volume.

Claim 7 (currently amended): A composition for electron emitters of gas discharge devices comprising a mixture of carbon nanotubes and oxygen-containing compounds of only alkaline-earth metals, wherein said carbon nanotubes are produced by a catalytic cracking and pyrolyzing of hydrocarbons, and said composition is coated on said electron emitters.

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Claim 8 (original): The composition according to claim 7 wherein said hydrocarbons are selected from the group consisting of alkynes and alkenes having 2 to 5 carbon atoms inclusive and alkanes having 1 to 5 carbon atoms inclusive.

Claim 9 (original): The composition according to claim 7 wherein said hydrocarbons are selected from the group consisting of substituted and unsubstituted aromatic hydrocarbons having 1 to 3 rings.

Claim 10 (original): The composition according to claim 7 wherein a catalyst for said catalytic cracking and pyrolyzing is selected from the group consisting of nickel, cobalt, chromium, iron, mixtures thereof, and alloys thereof.

Claim 11 (original): The composition according to claim 10 wherein said catalyst is cobalt chromium alloy.

Claim 12 (currently amended): A gas discharge device comprising:

a gas; and

an electron emitter disposed in said gas;

wherein said gas is capable of generating a discharge if interacting with electrons emitted by said electron emitter, and said electron emitter comprises a coating that comprises a mixture of carbon nanotubes and oxygen-containing compounds of alkaline-earth metals on an electrically conductive material ~~coated with a mixture of carbon nanotubes and oxygen-containing compounds of alkaline-earth metals.~~

Claim 13 (previously presented): The gas discharge device of claim 12 wherein said oxygen-containing compounds of alkaline-earth metals are alkaline-earth metal oxides.

Claim 14 (original): The composition according to claim 12 wherein said carbon nanotubes have a diameter in a range from about 1 nm to about 200 nm.

Claim 15 (previously presented): The gas discharge device according to claim 12 wherein said diameter is in a range from about 1 nm to about 100 nm.

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Claim 16 (previously presented): The gas discharge device according to claim 13 wherein a proportion of said carbon nanotubes in said mixture of carbon nanotubes and alkaline-earth metal oxides is in a range from about 0.1 percent by volume to about 95 percent by volume.

Claim 17 (previously presented): The gas discharge device according to claim 16 wherein said proportion is from about 5 percent by volume to about 90 percent by volume.

Claim 18 (currently amended): A gas discharge device comprising:

a gas; and

an electron emitter disposed in said gas;

wherein said gas is capable of generating a discharge if interacting with electrons emitted from said electron emitter, and said electron emitter comprises a coating that comprises a mixture of carbon nanotubes and oxygen-containing compounds of alkaline-earth metals on an electrically conductive material ~~coated with a mixture of carbon nanotubes and oxygen-containing compounds of alkaline-earth metals~~, wherein said carbon nanotubes are produced by a catalytic cracking and pyrolyzing of hydrocarbons.

Claim 19 (original): The gas discharge device according to claim 18 wherein said hydrocarbons are selected from the group consisting of alkynes and alkenes having 2 to 5 carbon atoms inclusive, alkanes having 1 to 5 carbon atoms inclusive, and mixtures thereof.

Claim 20 (original): The gas discharge device according to claim 18 wherein said hydrocarbons are selected from the group consisting of substituted and unsubstituted aromatic hydrocarbons having 1 to 3 rings inclusive.

Claim 21 (original): The gas discharge device according to claim 18 wherein a catalyst for said catalytic cracking and pyrolyzing is selected from the group consisting of nickel, cobalt, chromium, iron, mixtures thereof, and alloys thereof.

Claim 22 (original): The gas discharge device according to claim 21 wherein said catalyst is cobalt chromium alloy.

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Claim 23 (original): The gas discharge device according to claim 12 further comprising a background gas contained therein, said background gas being selected from the group consisting of helium, neon, argon, krypton, xenon, and mixtures thereof.

Claim 24 (original): The gas discharge device according to claim 23 wherein said background gas has a pressure of less than about 0.3 kPa.

Claim 25 (original): The gas discharge device according to claim 24 further comprising a mercury vapor contained therein.

Claims 26-38 (canceled)

Claim 39 (previously presented): The composition according to claim 1 wherein said diameter is in a range from about 1 nm to about 50 nm.

Claim 40 (previously presented): The composition according to claim 1 wherein said diameter is in a range from about 1 nm to about 20 nm.

Claim 41 (previously presented): The composition according to claim 5 wherein said proportion is from about 20 percent by volume to about 90 percent by volume.

Claim 42 (previously presented): The composition according to claim 5 wherein said proportion is from about 30 percent by volume to about 90 percent by volume.

Claim 43 (previously presented): The gas discharge device according to claim 12 wherein said diameter is in a range from about 1 nm to about 50 nm.

Claim 44 (previously presented): The gas discharge device according to claim 12 wherein said diameter is in a range from about 1 nm to about 20 nm.

Claim 45 (previously presented): The gas discharge device according to claim 16 wherein said proportion is from about 20 percent by volume to about 90 percent by volume.

Claim 46 (previously presented): The gas discharge device according to claim 16 wherein said proportion is from about 30 percent by volume to about 90 percent by volume.

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Claim 47 (new): A composition for electron emitters of gas discharge devices comprising a mixture of carbon nanotubes and oxygen-containing compounds of alkaline-earth metals, wherein said oxygen-containing compounds are other than oxides, and said carbon nanotubes have a diameter in a range from about 1 nm to about 200 nm.